

The listing of claims will replace all prior versions, and listing, of claims in the application:

LISTING OF CLAIMS

Claim 1. (Currently Amended) A method of polymerizing an aromatic monomer, comprising mixing an aromatic monomer with a derivatized hematin catalyst in a solvent to form a mixture, said solvent having a pH in the range of about 0.5- 3.0 ~~0.5-4.0~~ wherein the derivatized hematin catalyst has been ~~previously reacted~~ formed by reacting hematin with one or more non-proteinaceous amphipathic groups; and adding a peroxide initiator to the mixture for forming, from the aromatic monomer, a polymer, said polymer being electrically conductive.

Claim 2. (Canceled)

Claim 3. (Currently Amended) The method of claim 1, further comprising ~~comprising~~ a template, wherein the aromatic monomer aligns along the template and, in the presence of the derivatized hematin catalyst, polymerizes ~~in a pH range of about 0.5-3.0~~, to form a complex comprising the polymerized aromatic monomer and the template.

Claim 4. (Original) The method of Claim 3, wherein the template is a polyelectrolyte.

Claim 5. (Original) The method of Claim 4, wherein the polyelectrolyte is polyanionic.

Claim 6. (Original) The method of Claim 5, wherein the polyanionic polyelectrolyte is poly (styrene sulfonic acid) or a salt thereof.

Claim 7. (Original) The method of Claim 3, wherein the template is optically active.

Claim 8. (Original) The method of Claim 7, wherein the optically active template is an oligonucleotide or a polynucleic acid or a salt thereof.

Claim 9. (Original) The method of Claim 8, wherein the polynucleic acid is 2'-deoxyribonucleic acid or a salt thereof.

Claim 10. (Original) The method of Claim 3, wherein the template is lignin sulfonic acid or a salt thereof.

Claim 11. (Original) The method of Claim 3, wherein the template is dodecylbenzene sulfonic acid or a salt thereof.

Claim 12. (Original) The method of Claim 1, wherein the aromatic monomer is a substituted or unsubstituted aromatic compound.

Claim 13. (Original) The method of Claim 12, wherein the aromatic compound is an aniline.

Claim 14. (Original) The method of Claim 13, wherein the aniline is 2-methoxy-5-methylaniline.

Claim 15. (Original) The method of Claim 12, wherein the aromatic compound is a phenol.

Claim 16. (Original) The method of Claim 13, wherein the complex formed is a water-soluble complex of a polyaniline and the template.

Claim 17. (Original) The method of Claim 16, wherein the the polyaniline is of an electrically-conducting emeraldine salt form.

Claim 18. (Original) The method of Claim 15, wherein the complex formed is a water-soluble complex of polyphenol and the template.

Claim 19. (Original) The method of Claim 3, wherein the polymerized aromatic monomer complexed to the template has a macro-asymmetry.

Claims 20-41. (Canceled).